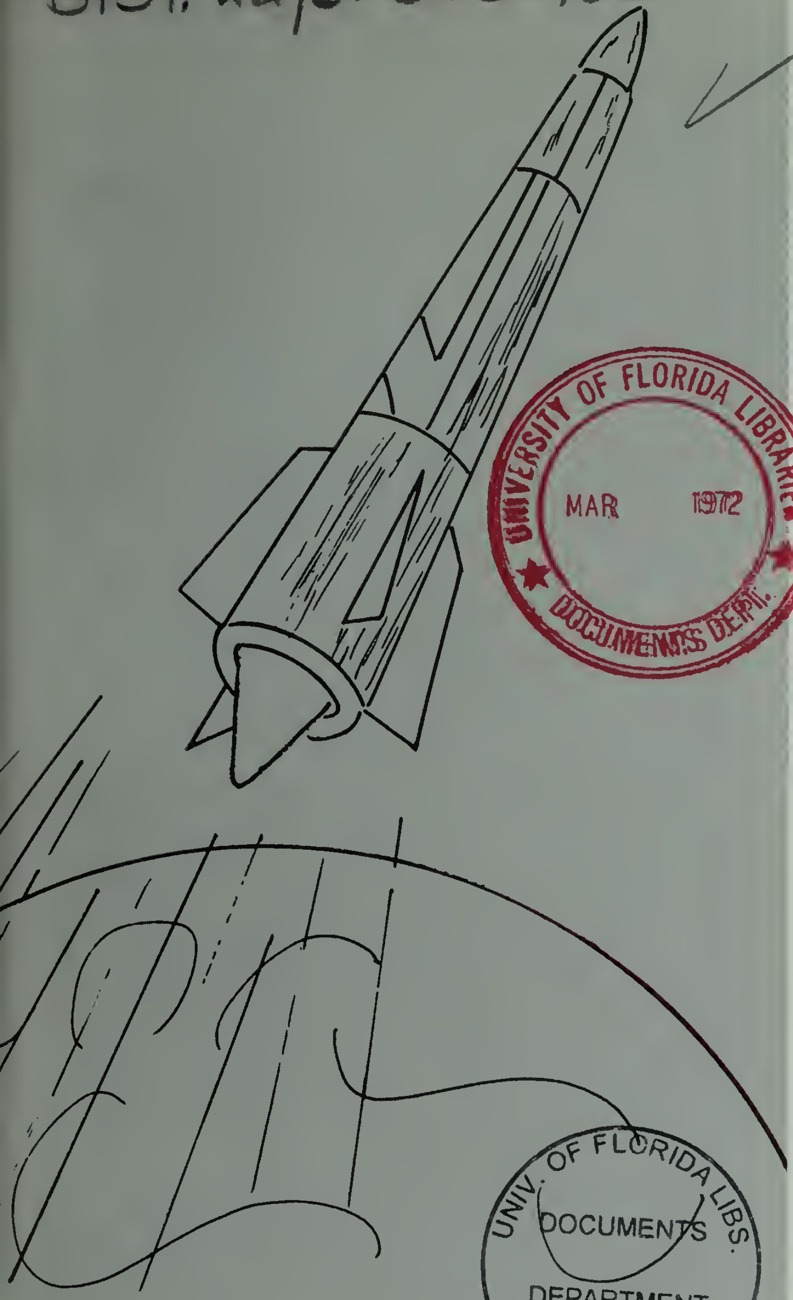
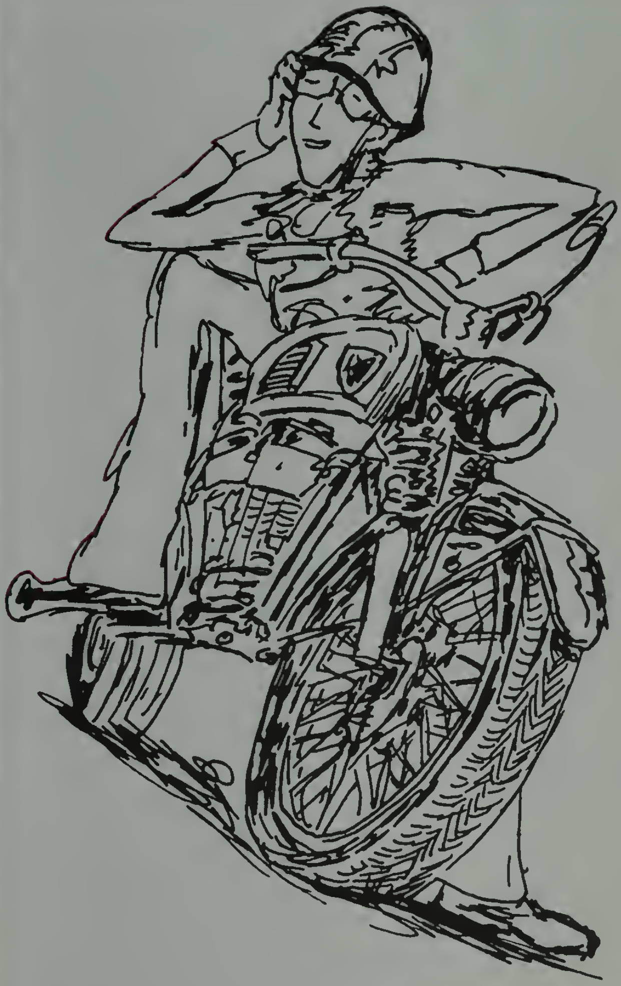
D101.22/3: 385-105



AMC SAFETY DIGEST

UNIVERSITY OF FLORIDA LIBRARIES
MAR 1972
DOCUMENTS DEPT.

UNIV. OF FLORIDA LIBS.
DOCUMENTS
DEPARTMENT
U.S. DEPOSITORY



JANUARY-FEBRUARY 1972

AMCP 385-105

IN THIS ISSUE

AMC wins the FY 1971 DA AWARD of HONOR for SAFETY ..... Inside Front Cover
FOREWORD I
IN THIS ISSUE II

AN "INSTALLATION" FAULT TREE ANALYSIS 1
CG, MUCOM presented FY 1971 AMC AWARD of MERIT for SAFETY 4
MR. WALTER GLENN QUEEN appointed as Chief, Safety Office, AMC 4
IS AN AVIATION ACCIDENT PREVENTION PROGRAM WORTHWHILE? 5
MONKEY SEE, MONKEY DO 6
MERDC VEHICLE OPERATORS WIN NSC DRIVER AWARDS 7
TEST THOSE CABLES OR SOMEONE WILL GET HURT 8

CURRENT EVENTS

FLYING FUZE FELLS WORKER 9
THE TABLE TOP TILTED 10
HE PUSHED WHEN HE SHOULD HAVE PULLED 10
FASTENING DEVICE UNLEASHES FURY 11
ELBOW BREAKS WHEN LADDER BREAKS 11
FIREWORKS DETONATE DURING DESTRUCTION 12

RADFORD ARMY AMMUNITION PLANT IS LEADING INDUSTRIAL PARTICIPANT IN DEFENSIVE DRIVING COURSE 13
PREVENTION OF ANTENNA ELECTROCUTIONS 15
JEFFERSON PROVING GROUND WINS AMC AWARD OF HONOR 16
SIPED TIRES NO ADVANTAGE ON WET ROADS 17
FIRE DETECTORS SAVE LIVES AND PROPERTY 19

EXPLOSIVES SAFETY

APE 1215, ROCKET DISASSEMBLY MACHINE 21
MAYBE YOU'RE ONE OF THEM 24
SAFETY DEVICES FOR TRACTORS PAY OFF 25
NAIL GUN INJURY 26
DO YOU KNOW? 29
NEW PUBLICATIONS 30
NEW MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 31
WELL, DID YOU KNOW? 32
DESERET TEST CENTER WINS TRAFFIC SAFETY AWARD 34
CHECK FOR SAFETY-CARE and USE OF HANDTOOLS ..... Inside Back Cover

AN "INSTALLATION" FAULT TREE ANALYSIS

A recent article (An Application of the Fault Tree Analysis, Safety Digest, November 1971) described the manner in which the fault tree analysis (FTA) could be adapted to a manufacturing process; i.e., a batch-type TNT plant, in an attempt to show the wide applicability of the technique.

The following information is an expansion of that article in that an effort is made to show general application to an entire installation.

A thorough knowledge of the system; i.e., the installation operations in this case, under consideration is essential.

For this discussion, it will be assumed that the following general types of operations are accomplished:

1. Explosives.
2. Industrial.
3. Transportation.

To initiate the analysis, the undesired event will be stated simply as "an accident occurs within the installation." An accident will be considered as any event resulting in loss of property, interruption of business and/or injury.

Based on the information available at this time, it is possible to begin constructing the "tree." It should be quite obvious that the aforementioned undesired event could be achieved as a result of an accident occurring while performing either explosives operations or industrial operations or transportation operations. The fault tree would appear as shown in Figure 1.

The specific operations comprising the general categories listed above again vary with the type of installation under study and its mission. For example, explosives operations at a depot might be considered as those involving normal maintenance, modification, renovation and demilitarization (MMR&D) of ammunition; whereas for an ammunition plant, this type of operation would involve manufacture and/or load, assemble and pack (LAP) activities. At "laboratory" installations, this type of exposure might be limited to operations associated with research and development activity in conjunction with explosives items.

Industrial operations could include, for example, materials handling, maintenance of facilities and equipment, vehicle rebuild, office activity, and wood and machine shop operations.

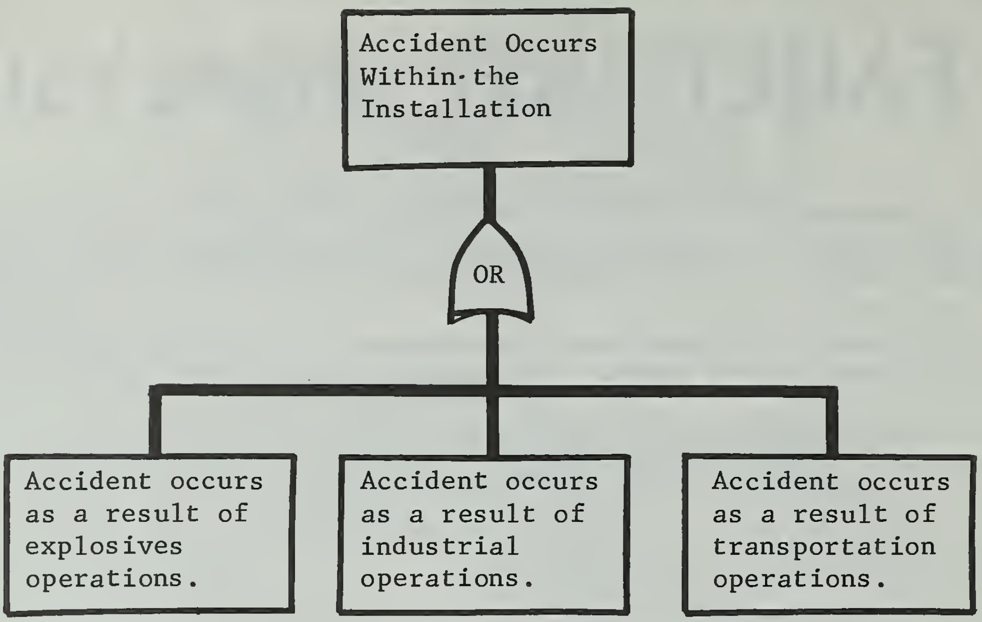

Accident Occurs Within the Installation
OR
Accident occurs as a result of explosives operations.
Accident occurs as a result of industrial operations.
Accident occurs as a result of transportation operations.

Figure 1. "Single Layer" Installation Fault Tree Analysis

Transportation activities could include motor vehicle, air, rail and marine operations.

A decision that must be made is which "branch(es);" i.e., explosives, industrial or transportation, to follow. Obviously, it would be most desirable to pursue all branches; however, available resources; e.g., time and money, will most probably dictate that the analyst develop his analysis according to some set of priorities, based on such things as past accident experience, directives from higher authority or accident potential revealed through test or prior analysis.

At any rate, it will be assumed that the explosives "branch" is to be explored in detail. This particular installation is somewhat unique in its missions since it not only manufactures explosives (nitroglycerin, propellants and TNT by the batch process), but also loads, assembles and packs ammunition and has an ammunition maintenance (MMR&D) function. This additional information is presented as Figure 2.

The reader is encouraged to note that the event entitled "fire and/or explosion in the batch-type TNT plant" was examined in the article referenced at the beginning of this discussion.

The link between these articles thus shows the general approach that can be followed to determine, through analysis, specific events occurring at any point on the installation, which could result in accidental loss.

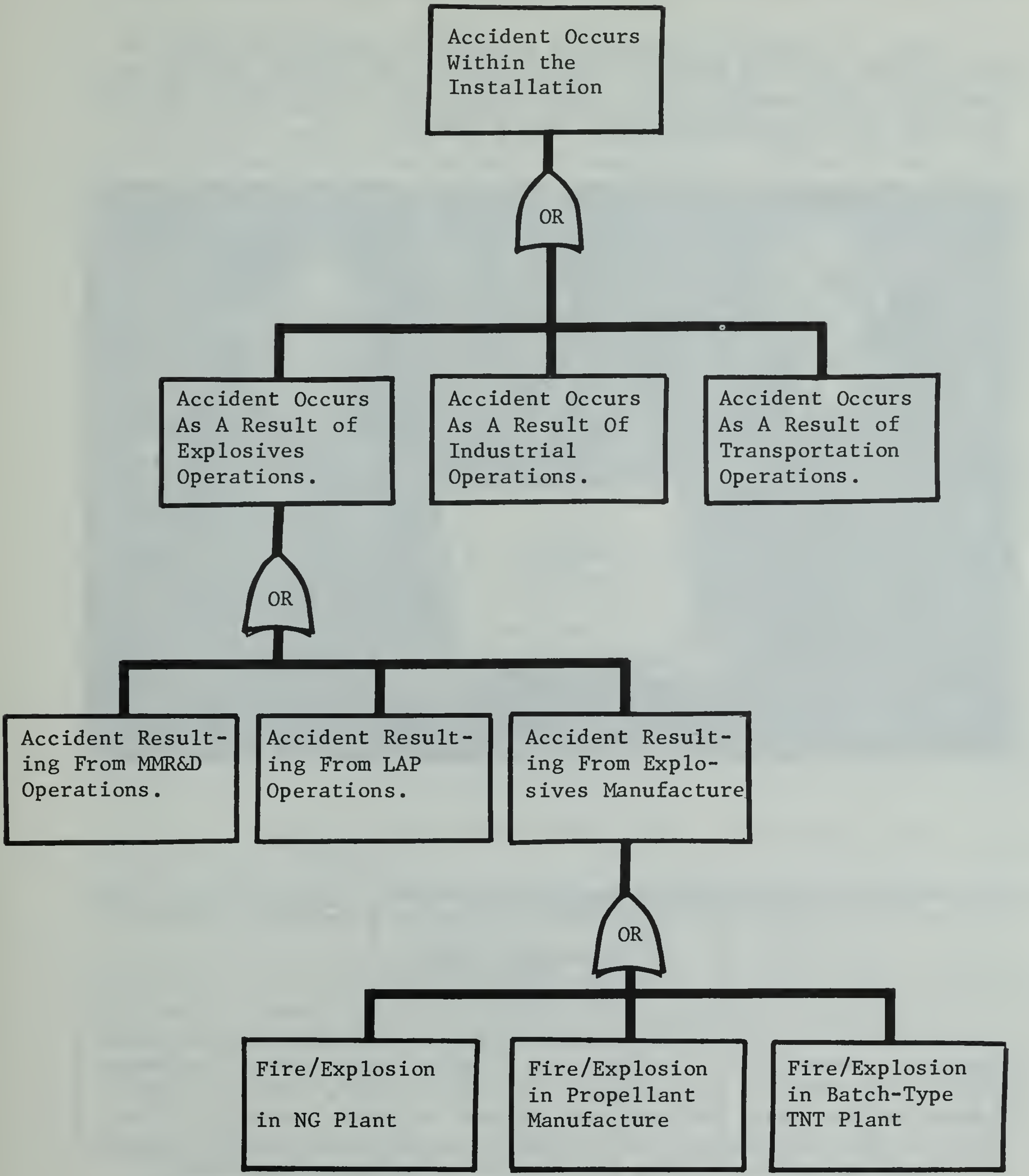

Accident Occurs Within the Installation
OR
Accident Occurs As A Result of Explosives Operations.
Accident Occurs As A Result Of Industrial Operations.
Accident Occurs As A Result of Transportation Operations.
OR
Accident Resulting From MMR&D Operations.
Accident Resulting From LAP Operations.
Accident Resulting From Explosives Manufacture
OR
Fire/Explosion in NG Plant
Fire/Explosion in Propellant Manufacture
Fire/Explosion in Batch-Type TNT Plant

Figure 2. Partial Installation Fault Tree Analysis

CG, MUCOM presented FY 1971 AMC AWARD of MERIT for SAFETY

MG H. R. Higgins, representing CG, AMC, is shown presenting the FY 1971 AMC Award of Merit for Safety to MG E. M. Graham, Jr., CG, US Army Munitions Command. This award is presented to the runner-up for the best AMC subordinate command safety program.

* * * *

MR. WALTER GLENN QUEEN appointed as Chief, Safety Office, AMC

14 November, 1971

Mr. Walter Glenn Queen was appointed as Chief, Safety Office, 14 November 1971. Mr. Queen entered Federal Civil Service as a safety engineer, January 1949. He has been in safety since then, first with the US Army Ordnance Corps, Safety Office, as Chief, Research and Education, and since 1962 with the US Army Materiel Command as Chief, Research and Laboratories, and as Deputy to the Chief, Safety Office. Mr. Queen was graduated from the Stevens Institute of Technology, Hoboken, New Jersey, with a BS degree, and served as an officer in the Navy during World War II.

* * * *

IS AN AVIATION ACCIDENT PREVENTION PROGRAM WORTHWHILE?

Logic tells us that everyone wants to "be safe" and a safety program shouldn't have to be "sold" to anyone. At the same time, I have serious doubts that statistics have ever convinced anyone to do anything. To illustrate my point, consider all the facts and figures that have been published concerning the dangers of smoking; yet, I'd be willing to bet that a number of you, as you read this, have a "pack" in your pocket or on your desk. Auto seat belts are another example. Did you "buckle up" coming to work this morning or going home last night?

In spite of all of this, I think it's still worthwhile to quote some famous last words and statistics concerning aviation accidents in the Army, worldwide, for FY 71 in the hope that they may make you more conscious of the fact that every time you look in a mirror, you see the guy most responsible for his own safety.

"The other guy has the accidents, not me!" Wrong--at least for 642 "other guys" during FY 71 because that's how many Army aircraft accidents there were.

"I'm safer flying than I am driving home!" Maybe--but there were 336 fatalities and 225 injuries in Army aircraft accidents last year.

"Safety programs aren't worth the time and trouble!" Wrong again--at least to the tune of $90 million total Army aircraft losses last year--an average cost per aircraft accident of $140,000.

"But we're in AMC; we did better than that!" True, but our record for FY 71 still reads 9 accidents, and one fatality at a cost of $328,000, hardly a record to be overly proud of.

The following figures were extracted from the US Army Safety Program Annual Report for FY 71.

	Army Aircraft Accidents	Rate/100,000 Flying Hours	Fatalities	Cost
RVN	421	16.56	268	
Overseas (less RVN)	27	10.60	15	$74,059,000*
CONUS	194	8.56	53	15,983,000
TOTAL	642	12.66	336	90,042,000
AMC	9	5.14**	1	328,664

* All overseas incl RVN.
** Based on recordable accidents only.

In summary, Army aviation accounted for 2% of all Army accidents, 1% of all Army non-fatal injuries, 18% of all Army fatalities and at a cost which accounted for 76% of the cost of all Army accidents. Accidents may always happen to the other guy but, unless all of us work at preventing accidents, that "other guy" might be your copilot or crew chief.

These types hopefully are the exception rather than the rule, but -- so are accidents!

Set a good example. Every hazardous condition or unsafe procedure eliminated may prevent an accident.

* * * * *

MONKEY SEE, MONKEY DO

CW3 George J. Tomei, Safety Officer
US Army Aviation Test Board, Fort Rucker, Alabama

Do as I say, not as I do! This statement has no place in an aviation safety program. The commander and his staff formulate and issue safety directives, policy, and procedures. But the responsibility does not end there. They must then set the example by following these directives to the letter. The commander who requires his personnel to follow his safety policy but does not follow it himself is looking for trouble. No safety program can succeed if only half the team is required to follow prescribed safety procedures.

We as leaders, must accomplish every task as we expect others to do them. We are the experienced aviators. We don't try to fly like the "new guy," the five-hundred-hour aviator. He definitely wants to do it the way we do. If we don't use a check list "because we wrote it," what can we expect of the young aviator? What is he going to do when he gets in that "Snake" or "Hawk" on his own? Every time we are observed by a subordinate, whether we realize it or not, we are "teaching." Therefore, even when we think we are alone, we should use the proper procedures.

In most aviation units the Operations Officer probably has more contact with the pilots than any other officer. What kind of example does he set? A good one? Or is he the unit "hot pilot?" Perhaps he has the flight scheduler use a dart board for flight crew assignment, because he feels that if he can do it, every pilot should be able also. He probably wears his old orange flight suit, even though nomex is required. This type usually doesn't realize that a problem exists until it is too late. As far as he is concerned, safety procedures take too much time and take all the fun out of flying.

Continued

The Maintenance Officer, the one man in a unit who holds our lives in his hands more often than any other. Does he set a good example or is he the unit used car salesman? Does he browbeat the young aviator who performs a good preflight inspection and refuses to fly the aircraft because he finds too many discrepancies? "What do you mean you can't fly it; I've been flying them like this for years. If I had to fix everything you found wrong, we'd never have any planes to fly. High aircraft availability is what I've got to worry about." Are his best mechanics the ones with the calibrated arm? You know, the man who is so good that he doesn't need a torque wrench.

No one sets an example like the Safety Officer. Good or bad, this is the one that everyone remembers. Especially the one who tells his friends at happy hour: "What a dull week this has been; I've been available all week, sitting in my office, every day, waiting for someone to report an accident!"

* * * * *

MERDC VEHICLE OPERATORS WIN NSC DRIVER AWARDS

Lieutenant Colonel George R. Relyea, Executive Officer of the US Army Mobility Equipment Research and Development Center, Fort Belvoir, is shown with four of the five vehicle operators receiving National Safety Council pins and cards for their safety record. From left, they are Thurman R. Scott, one-year award; Calvin T. Bushrod, 7-year award; Richard A. Jackson, 17-year award; and Frizelle Givens, 21-year award. William N. Turner received a two-year award but was not present when the photo was taken.

TEST THOSE CABLES OR SOMEONE WILL GET HURT

Five men were assigned to unload some heavy items of ammunition in an ammunition storage area. The men were using a M246 wrecker to unload a 2½-ton truck when the wrecker cable broke, allowing the ammunition to drop approximately six feet. Fortunately, no one was injured. However, had someone been trapped under the load, it could have resulted in a lost-time injury or fatality, or, had a detonation occurred, all five men could have been instant fatalities.

An examination of the wrecker cable revealed uneven breaks and signs of necking which indicated that the wires failed in tension. The cable had a rated strength 10 times greater than the weight of the ammunition being lifted. An investigation of the procedures used by the installation in load testing its M246 wreckers determined that the load tests were not being conducted in accordance with procedures prescribed in TB 9-352. The cables were being tested with the heaviest engine available instead of the weights prescribed by the TB; thus, all load tests were invalid and all wreckers were deadlined.

Load testing of the cable involved determined that an additional load would have been required to cause a tensile failure. Further investigation revealed the cause of this accident. When the cable of a M246 wrecker is not played out prior to extending the boom, the hook comes up to the pulley in the end of the boom and stops. Further attempts to extend the boom stretches and weakens the cable and can cause a tensile load in the cable that is greater than the yield point, causing the cable to fail.

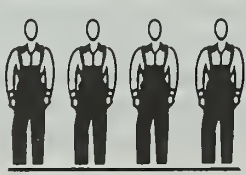
To preclude similar incidents in the future, the following measures should be taken.

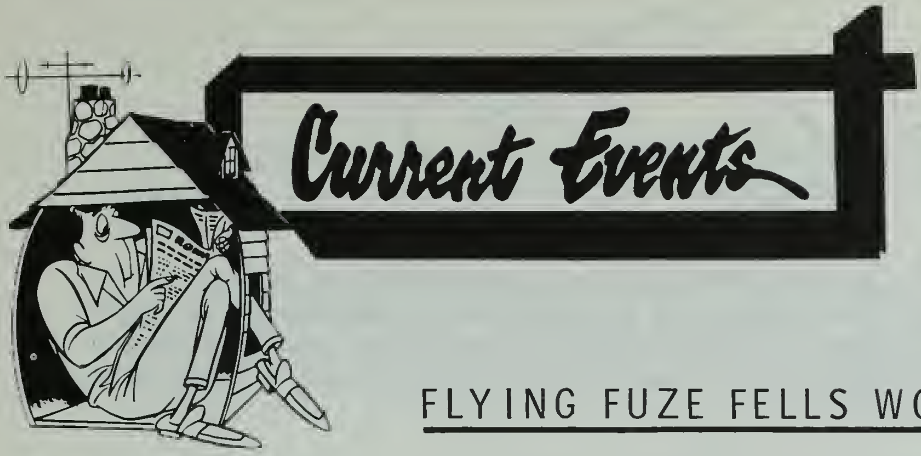
1. Assure that load tests for M246 wreckers are accomplished in accordance with TB 9-352.

2. Make sure that the cable is played out properly before extending the boom to prevent straining the cable.

3. Check the cable for frayed or broken strands before attaching it onto the first load.

* * * * *





FLYING FUZE FELLS WORKER

Civilian test personnel were removing an M514 SI (Short Intrusion) fuze from an M437 (175mm) projectile (inert load). To facilitate the disassembly, one worker had clamped the shell in a vise and had begun unscrewing the fuze. The fuze suddenly propelled from the projectile, striking a worker. He suffered a collapsed lung.

Investigation of this accident revealed pertinent facts concerning the occurrence. Ten projectiles, with fuzes, had been subjected to 28 hours of temperature conditioning at 145°F. prior to planned vertical firing. Several projectiles were found to have wax exuding from them. These were taken to a field defuzing unit where fuzes were to be removed and returned to the test requestor for investigation.

A chain vise was used to hold the projectile stationary. A fuze wrench, pipe cheater and possibly a sledge hammer were used to manually supply torque to the fuze to permit disassembly. Dislodgement of the first fuze was tedious but successful. The second fuze, through extreme physical effort, was turned two revolutions, whereupon it propelled, intact, from the projectile due to pressure build-up caused by the wax filler, shearing the fuze threads.

It was determined that the test personnel involved resorted to using unsafe manual methods for fuze removal. This resulted in undue force being exerted on the item. The tools utilized were found to be extremely worn. The workers also placed their bodies in the probable zone of impact should such a pressure blow occur.

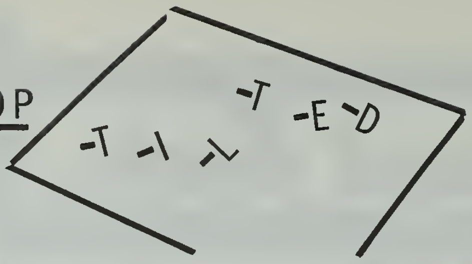
Corrective efforts taken to prevent recurrence of this type of accident included:

1. When personnel recognize that the fuze cannot be readily and safely dislodged in the field, they shall limit further manual attempts in favor of a remote defuzing operation. Under no circumstances will cheater bars or sledge hammers be utilized.

2. A study will be made concerning the pressure build-up and cohesive properties of the inert filler wax throughout the entire test temperature range.

3. Supervisors and workers must place additional emphasis on safety during test operations.

THE TABLE TOP



A civilian employee was assigned to clean some metal table tops prior to their being painted. This was to be accomplished by immersing the table tops in a dip tank containing an alkali cleaning solution, and then immersing them in an adjoining tank containing boiling hot water as a final rinse step in the cleaning process.

The employee removed one of the table tops from the alkali solution and utilized a metal hook to transfer it to the hot water rinse tank. He then raised the table top from the boiling water to drain. While grasping the table top, he slipped on the wet duck boards of the platform. This caused him to jerk and tilt the table top toward him, spilling the hot water on his legs and feet.

The burns responded to treatment at the Post Dispensary for approximately two weeks and no time was lost. Then an infection developed in the man's right ankle, and he was hospitalized and lost ten days work.

Corrective action included application of an anti-slip material to the platform. The accident was publicized and discussed at local safety meetings. Employees were cautioned to exercise special care when required to work with and handle materials around hazardous solutions, such as hot water, acids and caustics.

****

He PUSHED when he should have PULLED

Two light equipment operators were assigned the task of mowing grass with farm-type tractors equipped with side-mounted cutter bars.

The front wheels of one of the tractors went down into a narrow ditch that was obscured by high grass. The driver was unable to move the tractor out by its own power.

The standard procedure in such a situation is for one tractor to pull the other one out by use of a tow chain. In this instance, the operators had forgotten to bring a chain with them.

Despite the protests of the driver of the stalled tractor, the other operator tried to push it out backwards with his tractor. Because of the angle and the difference in elevation, the bumper guards did not line up evenly. The bumper of the tractor jumped over the bumper of the one being pushed, damaging the grille, radiator, shell and power steering piping in the amount of $397.00.

Contributing factors to the accident were violation of the standing operating procedure, poor judgment and impatience in obtaining proper equipment.

The driver who attempted to push the stalled tractor was given a disciplinary five-day suspension from duty. In addition, the accident was discussed with all equipment operators and drivers, with emphasis on the results of poor judgment on the part of operators.

****

FASTENING DEVICE U-N-L-E-A-S-H-E-S FURY

An Army civilian employee had just begun blocking and bracing operations on an outgoing flat-bed truck. After nailing chock-blocks to the truck bed, the worker turned away from the truck.

At that moment, a rubber fastening strap which secured a tarpaulin on the truck snapped. The strap lashed across the truck and struck the worker in the face. The metal fastener on the end of the strap struck and demolished the man's safety glasses. He suffered corneal abrasion, vitreous hemorrhage and iris laceration of the right eye.

The strap in question measured approximately 33 inches in normal length and was stretched to approximately 65 inches when being used. The cause of its untimely release could not be determined. In the future, trucks will be examined for such straps and if found in use, one end will be loosened prior to the performance of blocking and bracing operations.

****

ELBOW B-R-E-A-K-S WHEN LADDER B-R-E-A-K-S

A civilian carpenter leader of the Post Engineer Branch was constructing a wooden partition. While climbing a wooden step ladder to place a top plate into position, the back legs of the step ladder broke, causing the man to fall to the floor. X-rays revealed he had sustained a fractured left elbow in the fall.

The ladder had been inspected approximately two months before the accident for soundness and appearance, and was found to be satisfactory. An inspection of the break and the condition of the wood indicated the break was recent.

Measurements indicated the ladder in question was a Type II (light duty) ladder, which is recommended only for light duty industrial work. A Type I (heavy duty) ladder should have been used for this particular job.

A possible contributing factor to the severity of the injury was the employee's having been restricted from any climbing, including ladders, as a result of a physical examination two weeks before the accident. The installation Safety Director was not notified of this restriction until more than 10 days after the accident.

Future precautions to prevent recurrence of such an accident include the following:

1. All ladders in the Post Engineer Branch will be surveyed, and all Type II ladders will be removed from service and replaced with Type I heavy duty industrial use ladders.

2. Post Engineer Branch employees will be instructed as to types of ladders and their uses.

3. The Medical Officer was requested to insure prompt notification of medical restrictions of employees.

****

FIREWORKS D-E-T-O-N-A-T-E DURING DESTRUCTION

A U. S. Deputy Marshal had delivered confiscated fireworks to an ammunition plant shortly after the Fourth of July holiday. The fireworks were taken to the explosives burning ground for destruction by burning.

Approximately 356 simulator explosive M80 firecrackers and 716 "cherry bomb" fireworks were distributed equally in eight burning baskets, and were to be ignited by a continuous propellant powder train to all eight baskets.

When the flame of the powder train reached the first basket, a detonation occurred which demolished the basket. The force of the explosion propagated to the remaining seven baskets, destroying five and damaging two. A piece of flying debris damaged a Government-owned sedan parked 500 feet away. There were no injuries, but property damage amounted to $2,850.00.

Contributing factors leading to the incident were:

1. Unsafe planning and layout of process of the operation being performed.

2. Lack of adequate testing of explosives items on a small scale for assurance for safe procedure prior to the operation.

3. Failure to recognize the explosive nature of the fireworks being destroyed.

4. The Commanding Officer, the Plant Manager, the Safety Department and the Plant Explosives Committee had not approved the storage or destruction of the fireworks.

Corrective actions taken to prevent a similar accident included the following:

1. Requests to store, burn, demilitarize or destroy unfamiliar or suspect explosives on the plant must have the combined approval of the Commanding Officer, the Plant Manager, the Safety Department and the Explosives Committee.

2. A complete and accurate inventory must be supplied to the Explosives Area Supervisor at the time of storage.

3. Any explosive item or material not covered by an approved standing operating procedure will be considered a suspect item. It will not be demilitarized without prior approval and in accordance with an approved written procedure.

****

RADFORD ARMY AMMUNITION PLANT IS LEADING INDUSTRIAL PARTICIPANT IN DEFENSIVE DRIVING COURSE

Mr. Dave White, Regional Director of the National Safety Council, presented the 1970 Defensive Driving Course (DDC) Training Achievement Award to Hercules Incorporated, the operating contractor of Radford Army Ammunition Plant. In making the award, Mr. White stated:

"On behalf of the National Safety Council, it gives me great pleasure to present this 1970 Defensive Driving Course Training Achievement Award to Hercules Incorporated for best performance by an industrial cooperating agency in the national campaign.

"With this award we recognize your having trained 1,444 drivers in the National Safety Council's Defensive Driving Course during 1970. This achievement is made more remarkable by the fact that your organization did not join the Driver Improvement Program until March of last year.

"Not only did this performance contribute greatly to the 1970 Defensive Driving Campaign, but it serves as an outstanding example of the role business and industry can play in the cause of better driving on our nation's streets and highways, and it clearly demonstrates the concern that Hercules Incorporated has for the lives and welfare of its employees at Radford Army Ammunition Plant.

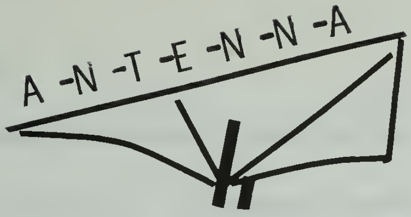
"In capturing this award, your organization bested the efforts of 68 other business and industry cooperating agencies in this category.

"Congratulations to you, your administrators and instructors and to the students who made this achievement possible. And best wishes for continued success in your efforts to reduce traffic accidents through training."

Mr. J. C. Foster, in accepting the award, commented briefly on the merits of the DDC training and the significant contribution it made in reduction of vehicle accidents as measured by both on-plant and off-plant frequencies.

Shown above is Mr. Dave White presenting the award to Mr. J. C. Foster, Plant Manager. Others looking on are, left to right, Mr. T. M. Hannah, Security & Personnel Superintendent; Mr. Don Brown, DDC Instructor; Mr. T. G. Grady, Safety Superintendent; and Mr. W. C. Hobbs, Training Director.

PREVENTION OF A-N-T-E-N-N-A ELECTROCUTIONS



To capture radio wave energy that carries picture and/or sound signals through space, TV and radio receivers are equipped with a variety of types and sizes of antennas, many of which are mounted to the exterior of a structure. The erection, maintenance, or dismantling of these antennas has resulted in 14 electrocutions of Army personnel during the period of 1 January 1970 - 20 May 1971. The seriousness of this particular accident potential is reflected in the vast number of antennas both on and off post that are utilized by Army personnel. Abatement of this type of accident requires specific actions on the part of personnel involved.

Managerial Specific Actions

✪ Inform all personnel of the hazard of electrocution when working with antennas. This can be brought about by means of fact sheets, letters, stories in newspapers, safety meetings or other appropriate media of the installation.

✪ Insure that on-post facilities are surveyed by post engineer and/or safety personnel prior to authorizing the erection, maintenance, or dismantling of any radio or TV antennas. Also, survey wherever possible off-post housing, both trailer and conventional, to identify those voltage lines that might interfere with the safe mounting of antennas and then warn personnel of the hazards found.

Individual Specific Actions

✪ Individuals contemplating the erection, maintenance or dismantling of an antenna should assess the following potential hazards involved prior to undertaking the actual work. Although this discussion is pertinent to all radio and TV antenna manipulation, it is primarily aimed at residential off-duty situations where forethought can avoid a tragedy.

✪ Due to the size, shape and height of the antenna, tiedowns consisting of three or possibly four guy wires may be required to securely mount an antenna.

-- Safe handling of the antenna may require more than one person. Do not overestimate your physical prowess. It may look easy from the ground but on the roof it becomes a bit more difficult due to the roof slope, guying requirements, etc., etc., etc. If you need help, get help.

Antenna Placement

In relation to any power lines, consider the following:

- Will the antenna and appendages or myself be exposed to contact with any power source? This assessment should include the possibility of the antenna falling.

- If there is ANY possibility of contact do not risk it. A suggested sound procedure would be to contact your power company before undertaking any work involving possible contact with any power source.

- Do not assume that all will clear. KNOW THAT IT WILL CLEAR!

- Remember the appendages such as lead-in, guying and grounding wires are conductive and as such can be just as much a hazard in contact with hot lines as the antenna itself. Make sure they are clear of hot lines.

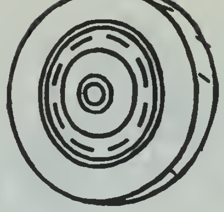
When you are satisfied that there is no hazard due to contact with hot lines and you finally are doing the job, do it right to include proper lightning protection in accordance with the National Electric Code, and proper ladder and hand tool selection and use. If you miss "Gunsmoke" you will probably be around for another week, but if you get in contact with ten thousand volts you won't.

****

JEFFERSON PROVING GROUND wins AMC AWARD of HONOR

MG Frank M. Izenour (left), Commanding General, U. S. Army Test and Evaluation Command, is shown presenting an AMC Award of Honor for Safety for FY 1971 to COL John O. Mayhall, Commanding Officer, Jefferson Proving Ground. This is the fourth consecutive year Jefferson Proving Ground has won an AMC Award of Honor for Safety.

SIPED TIRES
NO ADVANTAGE ON WET ROADS



SIPING AUTOMOBILE TIRES DOES NOT IMPROVE THEIR STOPPING ABILITY and resistance to lateral breakaway on wet surfaces. This finding was made at the Office for Vehicle Systems Research* by Arthur Neill, Jr., in work for the Department of Transportation. In tests of siped and unsiped tires on four types of wet road surface there was in general no significant difference between their stopping ability or resistance to lateral breakaway.[1]

SIPING

Siping, or tractionizing, tires consists of making a series of slices across the tread face all the way around the tire without removing any rubber. The process is said by some to improve stopping ability and lateral breakaway on wet surfaces. DOT's National Highway Traffic Safety Administration asked the NBS Office of Vehicle Systems Research to measure and report on the effectiveness of siping.

NBS PERFORMANCE TESTS

NBS tested new and worn tires that were siped by two representative methods against identical unsiped tires. In method A the tire is mounted on the siping machine's hub, it is trued, and eight cuts per inch are made (at 90° to the direction of rotation) across the tire at a depth of 5/32 to 6/32. In method B, seven sipes per inch are cut all the way around the tire at angles of 65° to the direction of rotation and at a depth of 7/32 for new tires and 4/32 for worn ones. For siping by both methods the tires were inflated to 24 psi and the siping was done with the tires loaded to simulate normal tire deflection.

Sixteen identical belted bias tires were used to test siping by method A; half of them were broken in for 100 miles and the other half driven 8,000 miles. Four of each group were then siped by method A, yielding one set of each of the following tires: New, new siped, worn unsiped, and worn siped. They were used, one complete set at a time, on an especially instrumented 1968 Chevrolet loaded to 1270 lb per wheel.

The road tests were run on test roadways of the Texas Transportation Institute (an affiliate of Texas Agricultural and Mechanical University) at Bryan, Texas. The stopping distance tests were run on asphalts consisting of bitumen with crushed silicous gravel and bitumen with slag and limestone screenings, as well as on polished concrete made from rounded silicous gravel. Before each run a watering truck coated the road surface with water to a depth of approximately 0.05 inch. For the actual run only diagonally opposite brakes were applied, to maintain lateral stability of the vehicle. The skidding distance traveled from point of lock-up was measured by a "fifth wheel" behind the car, which produced 1 pulse per foot of travel.

Stopping distance tests were carried out on the three courses at speeds of 20, 30, 40, and 50 miles per hour. No truly significant differences were found between siped and unsiped tires, new or old, on these courses and at these speeds. On only one surface, the highly abrasive crushed gravel asphalt, was there a slight improvement in stopping distance for siped tires.

The same tires were used on J-curve courses to determine the highest speed possible without experiencing any lateral breakaway--the greater the speed, the better the traction. These courses consisted of asphalts made from rounded silicous gravel and from crushed silicous gravel, shaped in straightaways leading to 288-foot-radius curves. Here, too, there was no substantial difference between the siped and unsiped tires, either new or worn.

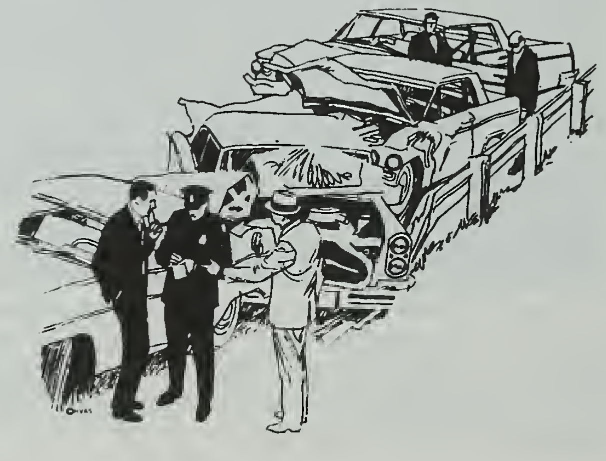
Tires siped by method B were tested for stopping distance and lateral breakaway in the same manner (and at 10 miles/hour also), with the same findings. There is no evidence that siping does improve traction on wet surfaces.

---

[1] Neill, A. H., Jr., Wet Traction of Tractionized Tires, Nat. Bur. Stand. (U.S.) Tech. Note 566 (Feb 1971), available at a cost of 20 cents from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, as SD Catalog No. C13.46:566.

*The Office was transferred to the Department of Transportation on July 1, 1971.

National Bureau of Standards
Technical News Bulletin, October 1971



FIRE DETECTORS

SAVE LIVES AND PROPERTY

Modern fire detection devices range from the simple to the very sophisticated. Included are infrared, smoke, ionization, ultraviolet, and electrical fixed temperature devices. They often exceed the human senses in sensitivity. The sensitivity is adjustable on some models and may be set to detect the burning of even a very small quantity of material. They have been activated by changes in humidity, a lit cigarette in the same room, and even by the operation of freshly painted electrical equipment. This detection of changes in humidity may be considered a side benefit where carefully controlled conditions are required, such as for a computer installation.

Although there have been some complaints that the warning devices have functioned without cause, in the great majority of cases there probably was some external event that triggered their sensitive mechanisms. This event may have been too temporary or minute to be verified by the human senses. Since they do have a sensing ability exceeding the human capability, they could be used to detect heating or burning of small electronic components deep within a complex piece of equipment. By detecting the first traces of combustion products they are able to provide a more advanced warning than was previously possible.

Fire victims often die from the effects of carbon monoxide gas, not flames or smoke inhalation as is commonly believed. The colorless, odorless carbon monoxide gas is produced along with smoke and other products by the combustion process. At the same time the fire gradually reduces the percentage of oxygen in the air. It is this lack of oxygen that causes illness and death.

Under normal conditions the red blood cells carry oxygen throughout the body. But the carbon monoxide combines with red blood cells 200 times more easily than oxygen and quickly displaces the oxygen on the surface of the red blood cells.

Superheated air also kills and injures. Since the heated smoke and combustion gases are lighter than air, they rise and create their own drafts. They rapidly flow up stairways, ventilator shafts, and through any available opening. Because of this upward movement, upper levels of a structure are often more dangerous than lower levels, even though the actual fire is at the lower level. This is why firemen ventilate the upper stories of a burning building by breaking windows and cutting openings into the roof.

Once the red blood cells have been affected by carbon monoxide poisoning, it takes a period of time for recovery, even though the person is no longer exposed to the combustion products. Oxygen is administered and hospitalization is frequently needed for the victims.

Toxic substances are produced by the burning, or even the heating of certain materials, such as plastic, wool and silk. One of the combustion products that professional firemen look for is cyanide gas. Some experts can detect it by its characteristic odor. The best advice for someone temporarily trapped in a burning building is to open a window for fresh air, close and seal any inside openings, and stay low, as close to the floor as possible, since the hot gases will collect first near the ceiling.

Fire detectors could provide a valuable early warning of a hazardous situation before it develops to the degree required to alert human senses. These devices are of particular value in augmenting existing systems, such as sprinklers and deluge systems. AR 420-90, Fire Prevention and Protection, contains requirements for fire protection alarm devices.

One device that appears to offer a great deal of potential is the self-powered, self-contained, warning horn type of alarm. One model consists of an aerosol can attached to a horn. The can is a steel cylinder containing a compressed inert gas. The device is controlled by a temperature head which utilizes a heat collector. The compressed gas is confined by a fusible metal plug located in the temperature head on top of the cylinder. When a fire occurs, the heat collector captures enough heat to soften the fusible metal plug, allowing it to be ejected by the gas pressure. The gas powers the horn for 10 to 20 minutes and the blast may be heard for distances up to one-half mile, according to one manufacturer.

These warning devices are available in various heat sensitive ranges. They come with a mounting bracket and may be attached to walls and ceilings. They should be placed at the highest points to detect the rising heated currents of air. Stairwells, hallways, storage and furnace rooms are recommended locations.

Many fire related deaths and injuries could be prevented by some type of early warning system. When fire strikes, there is no time to waste. An automatic fire sensing and alarm device may make the critical difference.

APE 125, ROCKET DISASSEMBLY MACHINE

The APE 1215 Rocket Disassembly Machine has proven itself valuable throughout the CONUS, Germany and Hawaii in the renovation of 3.5 inch (M28A2, M29, M30), and 66mm, M72 LAW rockets. Although its initial purpose was only for remote removal of detonator from warhead, the APE 1215 was refined to provide complete disassembly breakdown (warhead, rocket motor, fuze and detonator) in one operation or to remove either the rocket motor or warhead selectively as may be required.

This equipment has several safety features, foremost of which is its capability to accomplish multiple hazardous operations simultaneously, thus reducing personnel requirements to a minimum. The machine is operated by a single operator whose exposure to the munitions is limited to the time required to load and unload the machine.

Compressed air provides the initial power required to operate the machine. A compressed air-driven hydraulic pump supplies the fluidic power to move the disassembly heads and actuate all clamps. The hydraulic pump and reservoir are mounted on the machine base.

A pneumatic logic circuit board (Figure 1) provides safety interlocks which control the machine to the extent that it functions in the desired sequence only. The various operational steps are sensed by miniature control valves located throughout the machine and fed back into the logic circuit.

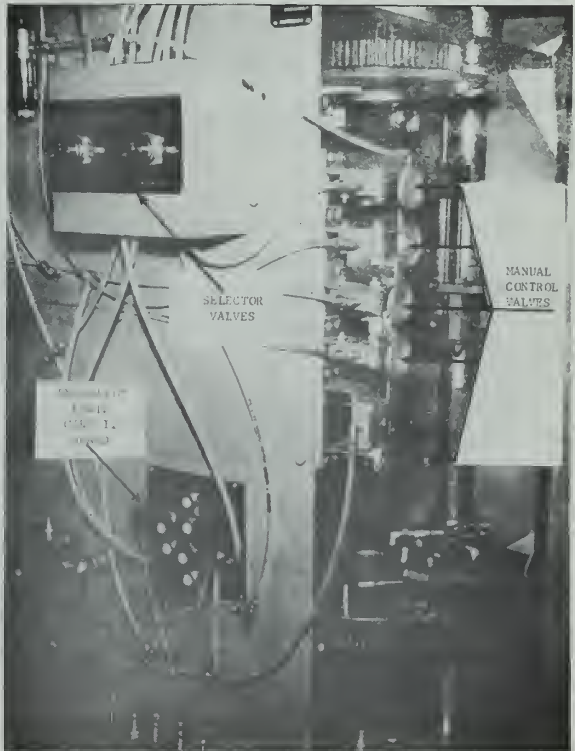


Figure No. 1

The APE 1215 is operated by five manual control valves and two selector valves (Figure 1) located on the machine proper and a remote control panel (Figure 2) located behind an operational barricade. The manual control valves are utilized while loading rockets into the machine and unloading disassembled components. Specifically, these valves are used to actuate jaws and clamps which grasp the rocket at locations where disassembly is to occur. The selector valves provide a means for choosing the desired rocket disassembly.

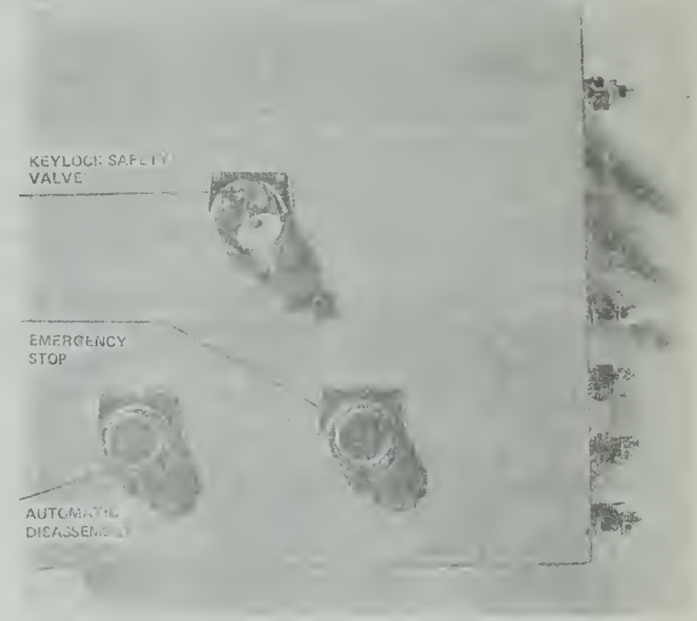


Figure No. 2

Other operational controls are installed on a panel outside the barricade. In addition to a keylock safety valve, the controls include a pushbutton (green) for automatic disassembly and a pushbutton (red) for emergency stoppage of the disassembly operation. Actuation of the latter locks the hydraulic system and cuts off air to the air motors at the disassembly heads.

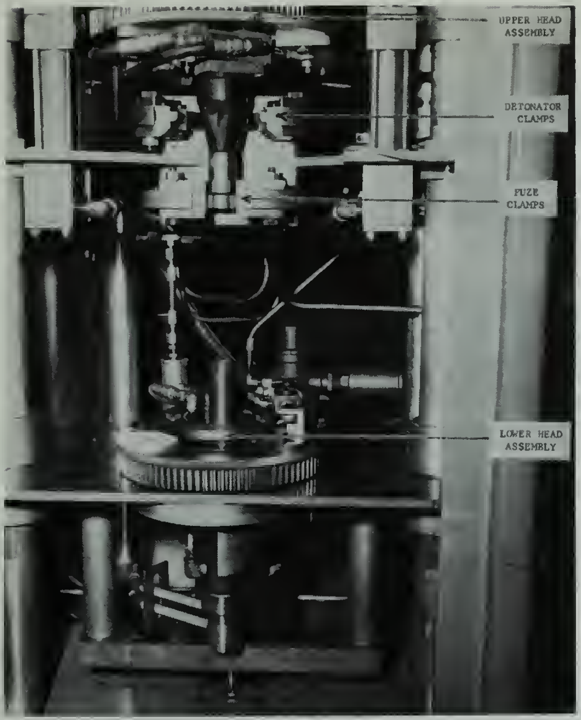


PHOTO 1

Major components at the point of disassembly are the lower head, upper head, detonator clamp and fuze clamp assemblies. These components are shown in Photo 1 where a 66mm, M72 LAW rocket is being disassembled. The lower head assembly contains jaws which grip the warhead. Five cup point set screws on the fuze clamps secure the fuze and closure plug to force disassembly between closure plug and rocket motor.

Operational sequence of the APE 1215 for the complete breakdown of 3.5 inch rockets is as follows:

1. Operator places UPPER HEAD selector switch in the "remove warhead" position, and the LOWER HEAD selector switch in the "remove motor" position.

2. Operator opens lower head jaws, fuze clamps, detonator clamps and upper head jaws by actuating manual control valves shown in Figure 1.

3. Operator places rocket motor in lower head assembly and closes lower head jaws.

4. Operator, behind barricade protection, inserts key in keylock safety switch and turns to ON position. Operator then presses START button (green) which activates the automatic disassembly operation. When operation ceases, operator turns key to OFF position, removes key, and returns to the machine.

5. Utilizing the aforementioned manual control valves shown in Figure 1, the operator sequentially removes the rocket motor, fuze, detonator housing and warhead from the machine.

The APE 1215 Rocket Disassembly Machine is exemplary of the efforts taken in the Ammunition Peculiar Equipment Program to improve munitions equipment. Fielded for four years, this machine has proven to be productively capable at a high level of safety.

****

MAYBE YOU'RE ONE OF THEM

George C. Thurston, Chief, Safety Office
Jefferson Proving Ground

Are you one of the supervisors who calls me on the phone, or writes me a DF telling me my safety inspectors were in one of your shops without your knowledge, and found a lot of little piddling discrepancies that didn't amount to a hill of beans?....That they should have talked to you first?.....Or they should have asked your permission to go into that shop first, and....on....on....on?

I listen to you defending that employee who wasn't wearing his eye protection while using a grinder. I know the guy is experienced. I know the guy has forgotten more about grinders than my safety inspectors will ever know.

I also listen to your reasons of why that grease spot was not cleaned up. I realize you don't have enough employees. Yes, I realize Personnel should transfer some of those people with little to do into your shop where the work is.

I also listen to your reasons as to why the shop was a little messy that day; that we caught you on a bad day. Yes, we'll come back another day when it's cleaner.

Yes, I agree, that man smoking in a "No Smoking" area is one of your best men. Yes, he probably did forget.

You finally run the gantlet of all the piddling discrepancies that my safety inspectors found. You hang up. You have given me a reason and an excuse for every one of those piddling discrepancies. You have told me off. You have told me a thing or two.

Well, you have told me a thing or two. You don't realize just how much!

You told me you were not a good supervisor....that you approved of your men taking short cuts as long as nothing happened. But if something did happen, you would, without a doubt, have an excuse which would exonerate all involved.

You told me that you did not correct unsafe work habits or conditions unless somebody told you to.

You told me that your shop's accident rate would be one of the worst on the installation.

You also told me that your employees were probably disgruntled and unhappy.

Yes, you told me a thing or two,....and it was all about you!

I don't feel bad or disheartened that my men "sneaked" into your shop and found all those piddling discrepancies. They may have saved one of your employees from serious injury, even though we didn't have your permission to do so. But what does make me feel bad and disheartened is that you, the supervisor, took the time that could have been used much more constructively to call me and read my pedigree, because we were helping you do your job.

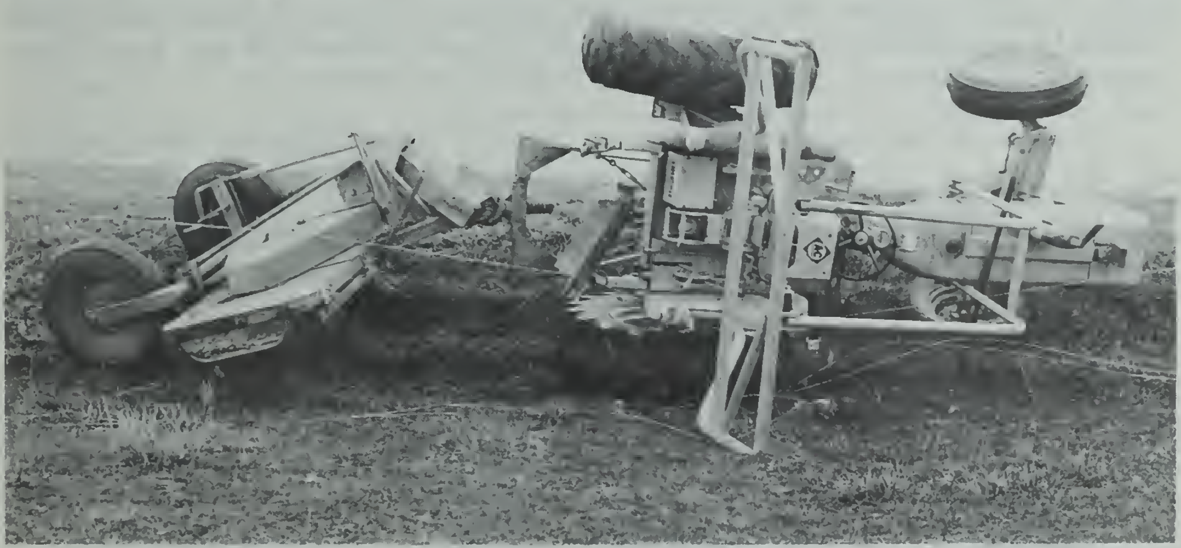
There will be times when we may be in the wrong, and when this happens, we want to hear about it. But before you pick up that phone, or take that pen in hand to tell me of my shortcomings, are you really going to tell me of your own shortcomings?

****

SAFETY DEVICES FOR TRACTORS PAY OFF

Planning ahead to reduce the hazards of grounds maintenance has paid off for the Lake City Army Ammunition Plant.

Recently a tractor operator was mowing a sloping shoulder on a plant road with a pull type rotary mower. The grass was slightly wet, and the tractor began slipping. Unable to right it, the driver found himself upside down, held securely by his seat belt. Roll bars prevented the tractor from pinning him down, and he walked away from the incident unscathed.



This was dramatic proof of the value of seat belts and roll bars in protecting tractor operators from injury. What could have been a serious accident turned out to be a minor incident.

****

NAIL GUN INJURY

An AEC contractor, in the interest of promoting accident prevention, furnished AEC with a copy of the following accident report concerning an event that occurred in one of its private plants. The contractor suggested that the report may be of benefit throughout the AEC in calling attention to hazards of unsafe models of powder-actuated tools. (The report has been edited to delete names, places, etc., and to clarify some points.)

The incident occurred when an employee was struck by a nail which was projected from a powder-actuated tool. The injured, a clerk, was at work in a stores office situated near a compound of temporary buildings allocated to outside contractors engaged on work within the plant. Within the compound there is a small wooden hut used to store electrical equipment and stores. This hut is located 21 feet from the stores office.

An instrument electrician employed for five years with the principal contractor found that he needed to fasten electrical cable (PVC steel wired armored) to a steel girder in a new construction project. This is normally achieved by the use of a nail gun, which drives screw-ended nails into the girder, providing a fastening point for the cable. The nail guns issued on the project are of a make which uses a captive-bolt/piston action. The nail is driven into the metal, cement or other material by the action of a cartridge-propelled captive bolt. The bolt travels a distance of up to five-eighths inch, with the required force being governed by the type of cartridge used. The nail itself is not propelled nor projected. The captive bolts are interchangeable to accommodate specific sizes of nails. The employees were familiar with the make being used. The instrument electrician, on examining the bolt required for his particular job, found that it had been damaged. The striking end had been "splayed" and allowed for a movement of the nail which did not make for a true striking angle. He decided to look for an alternative.

Within the hut was a nail gun of another make which had been out of use for several years but had remained stored within the hut. He decided to test this gun for the job he was about to do. This make nail gun is a type which projects the nail in the manner of a firearm, rather than driving the nail with a captive bolt. The employee stated that he was unaware of this difference. He was joined at this time in the hut by another electrician employed by the same contractor.

The instrument electrician loaded the propelled-nail type gun with a nail and a cartridge and placed it against the inside wall of the hut, six inches below a window sill, and fired the gun. The nail passed through the wooden planking of the hut and was not found. It had in fact traveled the 21 feet between the hut and the near wall of the stores building, through a steel galbestos cladding outer sheath, through two inches of polystyrene insulation and through the inner steel wall, and traveled 15 feet 4 inches farther to strike the injured who was standing at a bookcase. The instrument electrician stated that he expected the nail he had fired to have stuck in the wall of the wooden hut and was surprised that it had not done so. He believed the nail had just passed through the boarding and dropped down to the ground outside.

He chose a second nail and cartridge and loaded the same nail gun a second time and placed it within two inches of the first hole and again pulled the trigger. Again the nail passed through the wooden hut side and into the stores office. On this occasion, it struck and splintered the plastic edging around a metal office desk. The nail was later found below this desk.

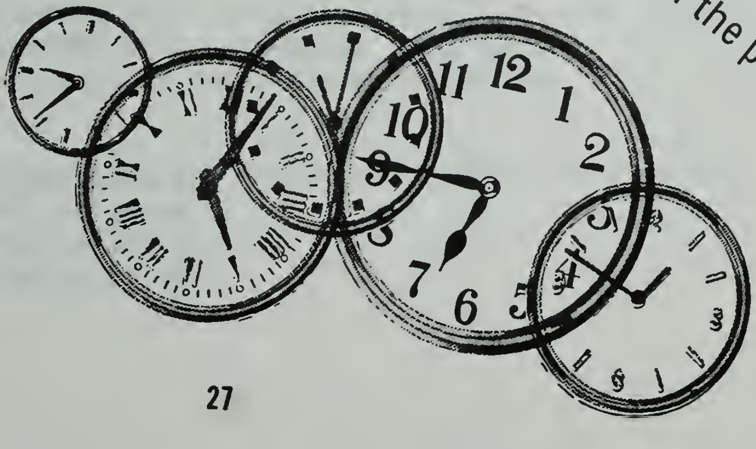
Within the stores office, the injured had been engaged in filing work at a bookcase situated against the far wall of the office. He was in a standing position facing the bookcase. A stock control clerk was seated at a desk adjacent and a secretary was also at a desk within the room. The injured stated he felt a sudden blow to his left leg at the knee which caused him to stagger. He states he thought something was lodged inside his leg. The stock control clerk went to his assistance. Both were really unaware of what had happened. While examining the injured's leg, another "bang" was heard and the edge of a desk situated against the near wall of the office splintered. It was then that a two-inch hole in the inner steel wall above the desk was noted and the men realized that they were under fire. They rushed from the room and informed an assistant supervisor and a receiving clerk of the incident. The receiving clerk ran around to the compound fence and shouted to those inside that someone was shooting at the stores office. The construction men emerged from the hut and stated that they had been testing a nail gun.

The injured showed evidence of severe shock and still complained of a pain in his left leg. No injury was apparent. A nurse was notified and she proceeded to the stores office. She escorted the injured to the plant first-aid room and initially treated him for shock. Later examination revealed a puncture in his left dorsal area and he was conveyed to the infirmary. X-ray examination revealed a nail lodged in his back. An emergency operation was performed and the nail removed. The injured was detained in the hospital.

?CAUSES?

preventive measures ?

--turn the page



An article like this makes you take time to think!

Causes:

1. Lack of experience of operator with propelled-nail type gun.

2. Negligence on the part of the operator in failing to test fire the gun in a downward direction.

3. Lack of training of the operator on using propelled-nail type gun.

Preventive Measures:

1. Only tools of the captive-bolt type should be used.

2. A member of supervision should be detailed on each site to have complete control of all cartridge-operated power tools.

3. All cartridge-operated tools and cartridges should be kept in a lock-fast place when not in use.

4. Tools should be issued only to persons who are in possession of a certificate of competence from the manufacturers stating that they have been trained in the use of their particular type of tool.

5. A register should be kept and the person who is going to use the tool will sign the register stating that he is the person who will be operating the tool, and that he is competent to do so.

6. The supervisor in charge should only issue the specific number of cartridges for a particular job, and ensure that a safe system of work is established. No spare cartridges should be issued.

Editor's Note: Safety regulations applicable to the use of "powder-actuated tools," (nail gun as identified in the above) are outlined in the following Occupational Safety and Health Standards:

For construction - 29 CFR Part 1518.302(e)
For other industries - 29 CFR Part 1910.243(d).
and in ANSI A10.3-1970, Explosive-Actuated Fastening Tools.

- Serious Accidents
Issue No. 319, 25 August 1971
Division of Operational Safety
U. S. Atomic Energy Commission

Here are ten questions that will test your knowledge of safety requirements that you will need under different circumstances. Answers to these questions may be found in the AMCR 385-series and the AMC Supplements to the AR 385-series. How many can you answer without referring to the regulations?

1. What type of electrical equipment must be used where both Class I (gas/vapor) and Class II (dust) hazardous locations exist?

Answer and reference:

2. Are conveyor openings in substantial dividing walls recommended?

Answer and reference:

3. What precautions should be taken when using new grinding wheels?

Answer and reference:

4. List several conditions which should be checked for during the inspection of ladders.

Answer and reference:

5. What is the quantity-distance classification and storage compatibility group for blasting caps?

Answer and reference:

6. How often should explosives dust collection systems be cleaned?

Answer and reference:

7. A grounded mast establishes a so-called "cone of protection," the height of which is the height of the mast. What is the radius of the circular base of the "cone"?

Answer and reference:

8. What document gives guidance in the investigation and reporting of explosions; and CB, nuclear weapon, nuclear reactor, and radiation accidents and incidents occurring at AMC installations and activities?

Answer and reference:

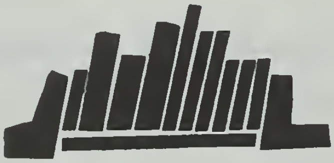
9. What types of explosives and ammunition will be tested and/or studied to determine hazard characteristics that influence handling, storage and transportation criteria?

Answer and reference:

10. What basic responsibilities must be met by AMC installations and activities that procure, receive, store, ship, use, transport, maintain or dispose of sources of ionizing radiation?

Answer and reference:

****



NEW PUBLICATIONS

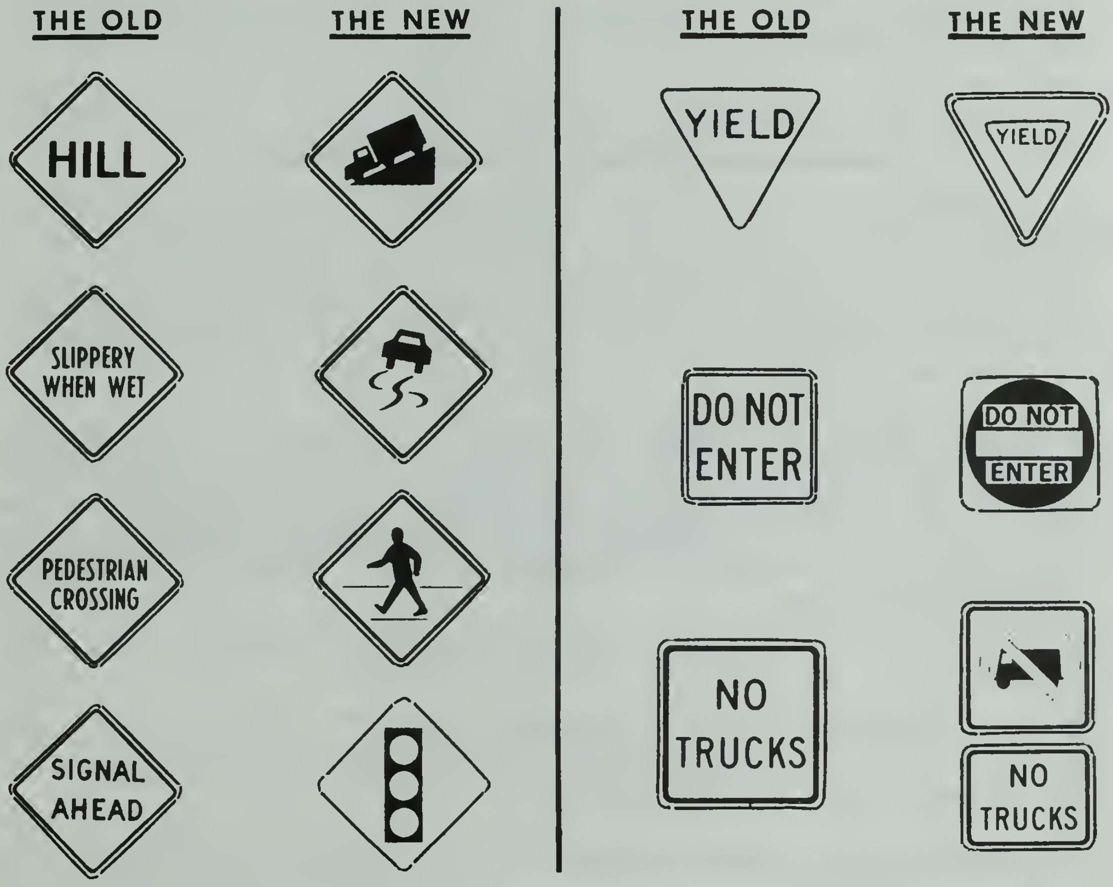
AR 385-10, Ch 1 17 Sep 71	Safety - Army Safety Program
AR 55-56, Ch 3 17 Aug 71	Transportation and Travel - Transportation of Chemical Ammunition, Chemical Agents, and Other Dangerous Chemicals
DA Cir 385-29 1 Oct 71	Safety - Costs of Accidental Nondisabling, Disabling, and Fatal Injuries to Army Personnel
AMCR 385-102 11 Aug 71	Safety - Safety Regulations for Chemical Agents GB and VX
AMCR 700-38 10 Sep 71	Logistics - Test and Evaluation of Materiel - Correction of Defects Found During Materiel Life Cycle Testing

NEW MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

Base commanders and their key functional traffic program officials are advised that the Federal Highway Administration has announced the initial approval of a revised Manual on Uniform Traffic Control Devices which is expected to be published prior to the beginning of 1972. In this connection. the government requires that traffic control devices on military installations within the United States be consistent with the currently valid national manual.

The new manual will reflect substantial changes in pavement (vehicular) markings. traffic signs and traffic signals. For pavement markings one year transition period after January 1, 1972, will be provided. To convert to the new traffic signs standard, replacement is recommended as a part of a regular maintenance program. Traffic signals, which require greater capital investment, are given a longer period for conversion.

In preparing budget estimates for 1973 and 1974, planning officials should consider a complete conversion of pavement (vehicular) markings on base. Additionally, for all traffic signs requiring replacement, the new sign standards should be used. Should new replacement traffic signals be required, it is suggested that procurement action be deferred until the new manual is available, or specifications on the new traffic signal standard are obtained. An advisory will be furnished at the earliest possible date concerning the availability of the new manual.



WELL DID YOU KNOW?

Here are the answers to the questions on pages 29 and 30. A reference to the pertinent regulation and paragraph follows each answer.

1. In those locations which are both Class I and Class II hazardous locations, electrical equipment shall bear the label of approval of the Underwriters' Laboratories for both Class I and Class II hazardous locations. Equipment installation shall comply with the National Electrical Code requirements for Class I, division 1, hazardous locations. Reference: Paragraph 6-3f(5), AMCR 385-100.

2. No. Openings in substantial dividing walls for installation of conveyors are not recommended. Where such openings are deemed necessary, the size shall not be larger than the minimum which will permit safe passage of the item being transferred. When these conveyors are not being used, adequate closures for the openings shall be provided. Reference: Paragraph 17-22b, AMCR 385-100.

3. Carefully inspect new wheels for cracks. New wheels, newly mounted, shall be run at full operating speed for at least one minute before being used. During this test, the operator and other employees shall stand clear, or in a protected area, to avoid injury should the wheel disintegrate as the result of hidden defects. Reference: Paragraph 9-22a, AMCR 385-100.

4. Ladders should be inspected for such items as:

   a. Loose or broken steps or rungs.

   b. Broken, split or cracked rails.

   c. Loose nails, screws or bolts.

   d. Missing, broken or damaged safety shoes.

   e. Condition of hinges and spreaders.

f. Defective locks (on extension ladders).

g. Condition of rope and sheaves.

h. General serviceability.

Reference: Paragraph 9-34a, AMCR 385-100.

5. Blasting caps are considered Class 7 for quantity-distance and assigned to storage compatibility group P. Reference: Table 19-1, AMCR 385-100.

6. Explosives dust shall be removed periodically from the collector chamber at intervals to eliminate unnecessary and hazardous concentrations of explosives but not less frequently than once every shift. The entire system should be cleaned weekly, dismantling the parts if necessary. Reference: Paragraph 27-7e, AMCR 385-100.

7. The circular base of the "cone" has a radius equal to twice the height of the mast. Reference: Paragraph 8-11c, AMCR 385-100.

8. AMC Supplement No. 1 to AR 385-40 amplifies responsibilities and procedures contained in the basic regulation for reporting explosions, and chemical and biological (CB), nuclear weapon, nuclear reactor, and radiation accidents and incidents occurring at US Army Materiel Command (AMC) installations and activities. It establishes responsibilities and procedures for technical investigation and analysis of nuclear weapon and CB accidents and incidents, and the routing required of all reports. Reference: Paragraph 1-1, AMC Supplement No. 1 to AR 385-40.

9. Explosives and ammunition to be tested for hazard characteristic determination include all explosives and propellants (both solid and liquid), and all finished ammunition items and ammunition components that contain explosives or propellants (e.g., rockets, guided missiles, signals, devices, and fuzes). Excluded are:

a. Liquid fuels and oxidizers, other than for use with missiles, guns, rockets, and similar items.

b. Nuclear bombs, warheads, and devices except with regard to blast, fire, and nonnuclear fragment hazards associated with the chemical high explosives contained therein.

c. Chemical, biological, and radiological (CBR) items without explosives components.

d. Wholly inert items.

Reference: Paragraphs 3 and 4, AMCR 385-21.

10. Commanders of installations and activities that procure, receive, store, ship, use, transport, maintain, or dispose of sources of radiation will:

a. Establish a formal, written radiation safety program.

b. Appoint a radiation control committee.

c. Appoint a qualified individual as radiological protection officer (AR 40-14) and an alternate to provide continuity of operations.

d. Assure compliance with Federal, State, and local regulations.

Reference: Paragraph 6a, AMCR 385-25.

****

DESERET TEST CENTER WINS TRAFFIC SAFETY AWARD

BG Max Etkin, Commanding General, Deseret Test Center, is shown receiving the 1971 Organizational Bamburger Memorial Traffic Safety Award from Mr. T. T. Pinder, President of the Utah Safety Council. The Award is presented annually by the Utah Safety Council to recognize individuals and organizations having made outstanding contributions to the cause of traffic safety in Utah. Deseret Test Center was selected as the winner of the 1971 award for its extensive defensive driving training for area personnel.

Check for Safety

CARE AND USE OF HANDTOOLS

- ✓ Worn teeth on wrenches and pliers.
- ✓ Screwdrivers, chisels, knives with worn, chipped or broken tips, mushroom heads or broken handles.
- ✓ Prying, pinching, chiseling or punching with screwdrivers and files is prohibited.
- ✓ Keep moving parts of adjustable wrenches clean and lubricated; keep handles, jaws, adjusting screws and other parts tight.
- ✓ Wrenches with fractures, broken handles, springs or other parts; jaws sprung or out of shape, bent, loose, with dull teeth or out of alignment.
- ✓ Always PULL on a wrench, never PUSH.
- ✓ Hammer handles are for gripping only, not for prying and tapping. Handles free from cracks and head set tight with wedge.
- ✓ Cutting and chipping with knives and chisels away from, not toward, the body.
- ✓ Cutting edges kept sharp enough to do the work intended. Dull tools are likely to slip.
- ✓ Wear goggles when doing any work where metal strikes metal & flying objects are involved.
- ✓ Makeshifts, such as pipe lengths or iron bars, used instead of crowbars, Extensions to increase leverage are prohibited.
- ✓ Jacks set straight. Load always blocked after it is raised. Never depend on the jack alone.
- ✓ Sharp objects sheathed or stored separately when not in use.
- ✓ Tools stored on top of bins, ledges, cabinets, protruding from bins in toolrooms.
- ✓ Tools extending beyond edge of workbench.
- ✓ Handsaws sharp, free from cracks and broken teeth.
- ✓ Files, knives, screwdrivers fitted with handles.
- ✓ Forks, rakes, shovels left lying on the ground.
- ✓ Wear hand protection while handling rough, sharp or abrasive materials.
- ✓ Screwdrivers will not be carried in pockets.
- ✓ Small objects secured in vise while filing, chipping or using screwdriver.
- ✓ When chiseling, use proper grip (palm up, chisel supported by thumb & first two fingers).
- ✓ Open end or socket wrenches used on nuts and bolt heads, not pliers.
- ✓ Defective tools turned in to toolroom immediately for exchange.
- ✓ Hacksaws should have blade tight, teeth pointed away from handle & frame in alignment.
- ✓ Proper footing and body positioned when prying or pulling pinch bar or wrench.
- ✓ Adjustable wrench held so pulling force is on the stationary jaw, not the adjustable jaw.
- ✓ Never use a screwdriver to check high amperage electrical circuits.
- ✓ Tape on handles of tools covering cracks, splinters and other defects.

If it is unsafe, Don't do it - - Report it !!

FLARE

UNIVERSITY OF FLORIDA
3 1262 09304 9087

UNITED
STATES
ARMY
MATERIEL
COMMAND

WASHINGTON
DC 20315